

WHAT IS CLAIMED IS:

1. Heat exchanging device with a substrate that comprises a bottom side and a top side, with a unit (9) for generating a directed fluid stream with a flow direction (10) that is tangential to bottom side (2) and to top side (3) of substrate (1), with webs (12) projecting from top side (3) of substrate (1), lying one after the other in flow direction (10), the height of which is less than the spacing (PL) of adjacent webs in flow direction (10), webs (12) being arranged perpendicular to direction of flow (10), characterized in that substrate (1) comprises a plurality of regularly arranged channels (4) extending through substrate (1).

2. Heat exchanging device according to Claim 1, characterized in that webs (12) extend continuously over the width (B) of substrate (1).

3. Heat exchanging device according to Claim 1 or 2, characterized in that webs (12) are arranged directly in front of channels (4) in flow direction (10).

4. Heat exchanging device according to one of Claims 1 3, characterized in that channels (4) have a rectangular shape with their longer side (5) oriented parallel to flow direction (10).

5. Heat exchanging device according to one of Claims 1 4, characterized in that substrate (1) is placed via spacers (7) on an object (11) and in that the height (KH) of the spacers is greater than the height (RH) of webs (12).

6. Heat exchanging device according to Claim 5, characterized in that the height (KH) of spacers (7) is less than the length (DL) of channels (4) in flow direction (10) and preferably less than 5 mm.

7. Heat exchanging device according to Claim 5 or 6, characterized in that several spacers (7) are provided, each projecting between channels (4) from bottom side (2) of substrate (1) and extending over the entire length of substrate (1) to form longitudinal channels (8).

8. Heat exchanging device according to one of Claims 5 7, characterized in that spacers (7) consist of thermally conductive material.

9. Heat exchanging device according to one of Claims 1 8, characterized in that substrate (1) consists of thermally conductive material, especially of metal, or of an arbitrary material that is coated with thermally conductive material.

10. Heat exchanging device according to one of Claims 1 9, characterized in that a guide plate (15) is arranged at the inflow side of substrate (1).

11. Heat exchanging device according to one of Claims 1 10, characterized in that a cover plate (13) is arranged a distance away from top side (3) of substrate (1), the spacing (AP) of cover plate (13) from top side (3) of substrate (1) being at least twice the height (RH) of webs (12).

12. Heat exchanging device according to Claim 11, characterized in that the side of cover plate (13) facing top

side (3) of substrate (1) comprises obstacles to flow, in particular, webs (14) that correspond to webs (12) on the top  
5 side of substrate (1).

13. Heat exchanging device according to one of Claims 1  
12, characterized in that several heat exchanging devices are  
modularly arranged side by side and/or one above the other  
and/or one behind the other.

14. Heat exchanging device according to one of Claims 1  
13, characterized by guide plates (20, 25) which are arranged  
such that a fluid stream (19) arriving perpendicular to flow  
direction (10) of webs (12) is deflected.